AN EXAMINATION OF THE EFFECTS OF COMMUNICATION MEDIA ON GEOGRAPHICALLY SEPARATED MENTORS AND PROTÉGÉS: DOES DISTANCE MATTER?

THESIS

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AFIT/ENV/GEM/05M-11

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AIR UNIVERSITY

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THESIS

Presented to the Faculty

Department of Systems and Engineering Management

Graduate School of Engineering and Management

Air Force Institute of Technology

Air University

Air Education and Training Command

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Engineering Management

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March 2005

AFIT/GEM/ENV/05M-11

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AFIT/GEM/ENV/05M-11

Abstract

The purpose of this study was to explore and evaluate the extent to which a formal mentoring relationship could transition into an informal mentoring relationship after geographically separating a formal mentor-protégé dyad. This study also explored the moderating effects of individual communication media (i.e., e-mail, telephone, written correspondence, and face-to-face) on the relationship between duration of separation and perceived mentoring effectiveness. Data were collected from 283 military graduate students attending an 18-month graduate program.

The results of this research revealed protégé perceptions of mentoring effectiveness increased with the length of the mentoring relationship. Furthermore, this study found formal mentoring relationships were capable of transitioning into informal mentoring relationships.

Acknowledgments

I would like to thank my faculty advisors, Major Danny Holt, Major Sharon Heilmann, and Major Bryan Hudgens for their guidance and support throughout the course of this thesis effort. Their guidance and insight were invaluable in keeping me focused on the task.

I would also like to thank my parents and all my family members back in Naples. Without their love and support, I would not have been able to accomplish this thesis, nor would I be the person I am today.

Finally, I would like to thank my wife. She has been a loving and understanding wife, who is constantly sacrificing herself to put up with my eccentricities. Her patients and constant encouragements gave me the strength to always do what I had to do and to do it right the first time.

Chen Yen Su

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CHAPTER 1

INTRODUCTION

Background

Historically, the concept of mentoring is believed to have originated in 800 B.C.
with the Greek mythological work *The Odyssey*. In *The Odyssey*, the character "Mentor"
serves as both advisor and father figure to King Odysseus's son, Telemachus. Mentor's
steadfast advice becomes instrumental in the development of King Odysseus's son. Their
relationship lays the foundation for future mentoring relationships (Parada, 1997).

Today, academics generally define mentoring as a situation where individuals
with advanced experience and knowledge (mentors) dedicate themselves to the
development of their protégés' (junior personnel, in whom the mentors take interest)
(Kram, 1985). Like "Mentor" in *The Odyssey*, mentors of today play an integral role in
the guiding and advising of junior personnel under their care, where protégés in effective
mentoring relationships reported more promotions (Dreher & Ash, 1990; Scandura,
1992), higher incomes (Chao, Walz, & Gardner, 1992; Dreher & Cox, 1996), and more
career satisfaction and mobility (Scandura, 1992) than those without mentors.

Not surprisingly, the United States Air Force (USAF) also has a vested interest in
the development of its junior personnel. The USAF defines mentoring as "a relationship
in which a person with greater experience and wisdom guides another person to develop

both personally and professionally" (Air Force Instruction 36-3401, 2000, p. 1).

However, the purpose of Air Force mentoring is not to enhance promotion opportunities

but to prepare its personnel for increase job responsibilities in future assignments. To

accomplish the preparation, supervisors are tasked with the job of guiding and advising

their subordinates in the principles, traditions, and values of the Air Force profession.

More formally, it is also Air Force Instruction (AFI) 36-3401 that officially designed the

immediate supervisor as a subordinate's formal mentor.

However, the pairing of these mentors and protégés is typically short lived. The

typical Air Force formal relationship last eight to fifteen months (Gibson, 1998) versus an

informal relationship's three to six years (Kram, 1985). The consequence of this shorten

duration may be a premature separation, a situation where the protégé is not given the

chance to fully develop under the mentor. Geographic separation compounds the

problem. The further protégés are from their mentors the more difficult it is to

communication effectively (Burgstahler & Cronheim, 2001). Existing literature has

suggested protégés in mentoring relationships that last two to five years derives the most

benefits (Kram, 1985). The mentoring literature also suggests the most effective

mentoring occurs when mentors and protégés are within close proximity of each other to

initiate face-to-face communication (Van Scotter, Moustafa, & Gibson, 2003).

Therefore, if Air Force Leaders wish to continue the growth and development of its

personnel, it must find ways to extend the mentoring beyond the confines of a formal

relationship.

Problem

The typical mentoring relationship has been well documented and observed; however, little has been done to investigate what happens to the mentors and protégés after being geographically separated. Intuition would suggest an atrophying of their relationship and its benefits, yet if we were to conduct a more thorough search; we would only find a handful of articles that explore the topic of geographic separation and the final phase of mentoring, the redefinition phase (Kram, 1983; Ragins & Scandura, 1997; Viator & Pasewark, 2005). This then raises several questions. What happens to mentors and protégés that are geographically separated? For example, does a protégé's formal mentoring relationship transform or evolve into an informal relationship? If the relationship does evolve from formal to informal through what media would mentoring continue (e.g., e-mail, telephone, written correspondence, face-to-face)?

Purpose

The purpose of this thesis was to explore and evaluate the extent to which a formal mentoring relationship could transition into an informal mentoring relationship after geographically separating the protégé from the mentor. This study also explored the moderating effects of individual communication media (i.e., e-mail, telephone, written correspondence, and face-to-face) on perceptions of mentoring effectiveness over time.

This study will benefit future researchers by adding to the empirical data in the field of mentoring and aid Air Force leaders in fostering the careers and professional development of their junior personnel. With the knowledge gleaned from this thesis, Air Force leaders can better understand the fundamental characteristics that define a geographically separated mentor-protégé relationship, and select and utilize the most

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effective media to perpetuate the relationship beyond its current confines into a

relationship that could continue across geographic distances.

CHAPTER 2

LITERATURE REVIEW

The literature review begins with an examination of the functions and phases of mentoring. Next, a synthesis of existing literature on mentoring type, duration of mentoring, and geographic separation will be presented. This chapter concludes with an examination of how commonly used communication media are used and how they may influence perceptions of mentoring effectiveness.

Mentoring Concepts

To get a better understanding of why mentoring is important, two main concepts must first be discussed, mentoring functions and phase of mentoring. Mentoring functions are the actions that mentors take to enhance the careers and lives of their protégés (Kram, 1985). Mentoring functions consist of career development and psychosocial support functions. Both of these items will be discussed in further detail in the following paragraphs. Phase of mentoring describes the natural life cycle (i.e., initiation, cultivation, separation, and redefinition) of a mentoring relationship. The level of mentoring functions received is associated with the phase of mentoring. Phase of mentoring will also be discussed in detail in the following paragraphs.

Mentoring functions. Career (development) functions consist of acts that enhance a protégé's chances for career advancement and include: (a) providing sponsorship for promotions and lateral movement (sponsorship), (b) increasing the protégé's visibility (exposure-and-visibility), (c) coaching the protégé (coaching), (d) protecting the protégé from adverse forces (protection), and (e) providing challenging assignments (challenging assignments) (Kram, 1985). Psychosocial (support) is believed to stimulate a protégé's

self-confidence and sense of competency by providing: (a) role modeling, (b) a sense of professional competence (acceptance-and-confirmation), (c) a support sounding board (counseling), and (d) respect and support (friendship) (Kram, 1985).

Existing research suggests that the greater the number of functions provided by the mentor, the more beneficial the mentoring relationship is to the protégé (Gibson, 1998; Kram, 1985; Noe, 1988). Both Allen and Eby (2004) and Rabbe and Beehr (2003) summarized this finding when they suggested mentoring relationships that cover the entire spectrum of career and psychosocial functions exemplify the qualities of an effective mentoring relationship.

Phases of mentoring. The effective utilization of mentoring functions is believed to occur throughout the natural life cycle of mentoring. The continuum consists of four phases: initiation, cultivation, separation, and redefinition (Kram, 1983, 1985; Chao, 1997). At each phase of a protégé's career, the need for certain mentoring functions is stressed (and/or considered more valuable by the protégé) over the need for other mentoring functions. The initiation phase is no exception.

The initiation phase is defined as the first six to twelve months of a mentoring relationship (Kram, 1983). Generally, during this phase, mentors and protégés are believed to have a positive image of each other. Protégés admire and respect the mentors for their competence and guidance, while mentors are believed to view protégés as eager pupils who are willing to learn and enjoyable to work with (Kram, 1983, 1985). At the initiation phase, protégés seek and receive more career developmental support such as coaching and challenging work (Kram, 1983). The behavior and interaction between

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mentor and protégé set the stage for the next phase of the mentoring relationship, cultivation.

The cultivation phase is a period of two to five years when the maximum range of career and psychosocial functions are provided (Kram, 1983, 1985; Ragins & Scandura, 1997). The goodwill generated during the early mentor-protégé relationship is further expanded and built upon by increasing the amount of challenging work, coaching, exposure-and-visibility, protection, and sponsorship the mentor provides (Kram, 1983, 1985). Sponsorship, or the active nominating of a protégé for a higher-level position or promotion, becomes the most frequently observed career development function (Kram, 1985). Kram (1985) states, "Without sponsorship, an individual is likely to be overlooked for promotions regardless of competence and or performance" (p. 25). It is also during the cultivation phase that psychosocial functions emerge. As the mentoring relationship develops, the social bond between mentors and protégés' strengthens as mentors increase role modeling, and acceptance-and-confirmation behaviors (Kram, 1983). A successful cultivation phase better prepares the protégé for eventual separation.

Separation occurs during a period of six months to two years after a significant change in the relationship structure and or in the emotional structure of the relationship (Kram, 1983). Typically, separation occurs as a result of psychological maturity or some type of physical separation (Ragins & Scandura, 1997). As the protégé becomes more mature, more confident, and more independent, the mentor-protégé dyad changes; the protégé may not need the mentor in the same capacity (Kram, 1983; Ragins & Scandura, 1997). Also, as job rotations or promotions limit opportunities for continued interaction,

protégés are often forced to relocate, and thus, redefine the way career and psychosocial functions are derived (Kram, 1983).

Redefinition occurs after an indefinite period of separation when the existing mentoring relationship ends or takes on different characteristics; during this phase, new relationships are formed. A redefined mentoring relationship could transform into a peer-like friendship, a more informal relationship, a phase of hostility and resentment, or a termination of the relationship (Kram, 1983, 1985; Ragins & Scandura, 1997).

Mentor-protégé interaction, during each of these phases, often translates directly into a protégé's perception of mentoring effectiveness. A protégé's perception of mentoring effectiveness is often measured by the perceived amount of mentoring functions the protégé receives (e.g., how much career development or psychosocial support is given; Allen & Eby, 2004; Fagenson-Eland, Marks, & Amendola, 1997). Protégés with a higher perception of mentoring effectiveness are more likely to feel confident in their abilities and possess more self-esteem, resulting in improved performance (Dreher & Ash, 1990; Noe, 1988; Scandura, 1998). Protégés without mentors or an organization's career and psychosocial support are more likely to feel less confident in their abilities and themselves, thus impairing their performance (Allen & Eby, 2004; Fagenson, 1989; Higgins & Kram, 2001; Kram, 1985). For example, a mentoring dyad deemed to be at the peak of mentoring effectiveness is commonly associated with the cultivation phase, while a low perception of mentoring effectiveness may signal a parting of ways and the beginning of the separation phase.

Kram (1983) and Blake-Beard (2001) suggest that if there are shared interests and desires after separation, mentors and protégés could continue to have some mentoring

contact in the redefinition phase. Scandura, Tejeda, Werther, and Lankau (1996) came to a similar conclusion when they proposed that mentoring is capable of transcending "over organizational boundaries, (and) often continuing after a mentor has retired or a protégé has changed organization" (p. 2). The caveat being, those mentor-protégé roles that do evolve and continue during the redefinition phase are less effective; they primarily transform into (mentor-protégé) coaching and the giving of advice on professional and personal growth (Noe, 1988; Scandura et al., 1996). Furthermore, those relationships tend to become more peer-like (Kram, 1985).

Past research also indicates that mentoring type (formal or informal) (Chao et al., 1992; Ragins & Cotton, 1999), duration of relationship, physical separation (Ragins & Scandura, 1997), and communication media (Van Scotter et al., 2003) influence a protégé's perceptions of mentoring effectiveness. These variables will be discussed in the following section.

Mentoring Type

There are two types of mentoring, formal and informal mentoring. Formal mentoring occurs when an organization or third party initiates and propagates the relationship, while informal mentoring relationships form and evolve spontaneously when protégés and mentors have shared interests, admirations, or job demands (Allen & Eby, 2004; Noe, 1988). Formal mentoring relationships are typically shorter in duration than informal mentoring relationships. Formal mentoring could last six months to a year, while informal mentoring is typically three to six years in duration (Kram, 1985).

Formal mentoring. The concept of formal mentoring was created as a means of capturing the benefits derived from an informal mentoring relationship, such as

improving employee performance, job satisfaction, and reducing employee turnover intentions (Chao et al., 1992; Ragins & Cotton, 1999). Formal mentoring programs may match mentors and protégés in any combination of assignment from random matching and committee assignment to mentor selection based on protégé profiles (Ragins & Cotton, 1999).

In some situations, the immediate supervisor is also designated as the mentor (Scandura, 1998). The benefit of this arrangement is that supervisory mentors are believed to have even greater influence over their protégés' career developmental opportunities and assignments than non-supervisory mentors (Scandura & Williams, 2004). The supervisory mentor would accomplish or at least have a direct impact on the protégé's performance appraisal.

The potential drawback with such a mentoring relationship is that a protégé may be reluctant to discuss his or her problems in fear of repercussion, specifically those that may negatively influence his or her performance appraisals (Scandura, 1998). There is also a common perception that formal mentoring is for at-risk performers, and individuals who enter such relationships do so because they need remedial attention (Ragins & Cotton, 1999). A short formal relationship is not believed to dispel the negative perception associated with such a matching because of its focus on short-term goals. Furthermore, there are organizational costs of time and resources associated with creating and maintaining a formal mentoring program. Organizational cost consists of the monetary expenditures necessary to bring mentors and protégés together and the loss of productivity when mentors and protégés are not performing their primary duties.

However, as a positive aspect, carefully monitored mentor-protégé matching can frequently create successful relationships that minimize the impacts caused by biases of age, race, and or gender (Burke, McKeen, & McKenna, 1994; Noe, 1988; Rabbe & Beehr, 2003; Ragins & Cotton, 1999). Additionally, from a corporate perspective, protégés in effective formal mentoring relationships reportedly have high levels of career and work satisfaction than those without mentors (Ragins, Cotton, & Miller, 2000).

Informal mentoring. Informal mentoring relationships are typically longer in duration than formal mentoring relationships; therefore, they are better designed to help the protégé achieve long-term career goals (Kram, 1985; Noe, 1988; Ragins & Cotton, 1999). The extended duration of informal mentoring also gives mentors and protégés more time to develop the psychosocial functions of role modeling, counseling, and friendship (Ragins & Cotton, 1999). Contrary to a formal mentoring program, the organizational costs are minimal because mentors and protégés are expected to sustain the relationship on their own accord.

The drawbacks of an informal mentoring relationship are generally associated with the selection process. Protégés typically select mentors who they view as potential role models, while mentors typically select protégés that are similar to themselves or considered high performers (Gibson, 1998; Ragins & Cotton, 1999). However, there is also a general conception that individuals, especially minorities, may be reluctant to initiate an informal relationship because of differences in gender and race (Hurley & Fagenson-Eland, 1996; Thomas, 1990). With cross gender relationships, there is the possibility the initiation of a mentoring relationship may be misconstrued as sexual advancement (Hurley & Fagenson-Eland, 1996; Ragins & McFarlin, 1990). Similarly,

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minority protégés have been found to be more hesitant to initiate cross racial mentoring relationships. While minority protégés do find cross racial relationships, the typical protégés prefer to develop same race relationships (Thomas, 1990).

Mentoring effectiveness. While there is significant evident to suggest formal and informal mentoring relationships differ in structure and duration, there appears to be a lack of conciseness as to which type of mentoring is more effective. The general findings may be summed up as one of the following: informal mentoring provides more overall mentoring (functions) than formal mentoring (Chao et al., 1992; Ragins & Cotton, 1999) or there are no differences between formal and informal mentoring (Allen & Eby, 2004; Fagenson-Eland et al., 1997).

Four empirical studies directly compared the effectiveness of a formal mentoring relationship with an informal mentoring relationship (Allen & Eby, 2004; Chao et al., 1992; Fagenson-Eland et al., 1997; Ragins & Cotton, 1999). Chao et al.'s (1992) research investigated how mentoring effectiveness was perceived from a group of engineers and managers. Of Chao et al.'s sample population, 212 were in informal mentoring relationships and 53 were formal mentoring relationships. Their study found protégés in informal mentoring relationships reported receiving more career functions and derived more mentoring benefits than those in formal mentoring relationships (Chao et al., 1992). However, Chao et al. (1992) did not have sufficient data to support their hypothesis that protégés in informal mentoring relationship received more psychosocial functions than individuals in formal mentoring relationships.

Ragins and Cotton's (1999) study of a group of journalists, social workers, and engineers ($n = 614$, $n = 510$ informal and $n = 104$ formal relationships, respectively)

came to a somewhat different conclusion. A protégé in an informal relationship was more likely to report receiving more of both career and psychosocial functions than a protégé in a formal relationship. In particular, Ragins and Cotton (1999) found individual psychosocial functions such as friendship, role modeling, and acceptance-and-confirmation were more pronounced in informal than formal relationships.

In contrast, Fagenson-Eland et al.'s (1997) study of 16 informal and 30 formal protégés (in a technology-based organization) found that protégés in informal mentoring relationships experienced more psychosocial benefits from their mentoring relationships, but they reportedly received the same amount of career functions as would an individual in a formal relationship. As an added research initiative, Fagenson-Eland et al. (1997) also investigated the formal and informal mentoring relationships from the mentors' perspective. Fagenson-Eland et al. (1997) reported mentors provided the same amount of career development or psychosocial support functions for both formal and informal protégés. The caveat is that the Fagenson-Eland et al. (1997) study had a small sample size of mentors ($n = 37$); therefore, only limited conclusions could be drawn from their research.

Allen and Eby (2004) expanded upon Fagenson-Eland et al.'s (1997) research of mentoring effectiveness from the mentors' perspective by examining a group of accountants and engineers ($n = 249$, $n = 71$ accountants, $n = 178$ engineers, respectively). Of the 249 participants, there were 125 informal relationships, 102 formal relationships, and 22 undetermined. Allen and Eby's (2004) study found mentors in informal and formal mentoring relationships reported no difference in the amount of career or psychosocial functions provided.

A synthesis of these articles suggests that while the actual mentoring functions provided maybe the same for both formal and informal mentoring relationships, protégés generally perceive informal mentoring as being more effective than formal mentoring (Allen & Eby, 2004; Chao et al., 1992; Fagenson-Eland et al., 1997; Ragins & Cotton, 1999). Furthermore, while it is apparent that formal mentoring is not the same as informal mentoring (e.g., matching, duration, goals), there is no evidence that suggests formal mentoring cannot transition into informal mentoring once the formal relationship terminates.

Duration of Mentoring

Current research indicates there is a direct relationship between the time a protégé spends with his or her mentor and the perception of mentoring effectiveness (Noe, 1988; Ragins & Cotton, 1999). The general finding suggests that the longer the mentors and protégés are together, the stronger the relationship.

Noe's (1988) study of 139 educators and 43 mentors support this conclusion. Noe (1988) found that protégés who spent more time with their mentors tend to receive more psychosocial support; although a similar theory dealing with career development functions was not supported. Ragins and Cotton (1999) came to a similar conclusion when they found mentors and protégés that are given time to build upon common interest and desires tend to be more effective than those that are not given that time. Ragins and Cotton's (1999) study of 609 engineering, social work, and journalist found the duration of a relationship was positively related to psychosocial support but not related to career development.

These two studies suggest that mentoring type and duration of mentoring would have a positive influence on a protégé's perception of mentoring effectiveness. More formally, they suggest:

Hypothesis 1: Protégés in longer formal mentoring relationships will have a higher perception of mentoring effectiveness than protégés in shorter formal mentoring relationships.

Intuitively, the opposite also seems to be true. The same relationships that were once given time to meet and to interact may no longer be deemed as effective once the formal mentoring relationship terminates. Kram (1985) and Ragins and Scandura (1997) theorized that mentoring dyads that became physically separated would bypass whatever phase their relationships were at and proceed straight to the redefinition phase. Furthermore, Kram (1985) suggested that at the redefinition phase many things can happen: the mentoring relationship can terminate, can continue but at a different level, or can transform into a peer like relationship. Each of these end states would typically have the protégé receiving less mentoring than if he or she was still in a formal relationship.

Therefore, it is then reasonable to assume that the longer the protégés are separated from their mentors, the greater the atrophying of perceived mentoring benefits. Thus, the second hypothesis is:

Hypothesis 2: Protégés recently separated from their formal mentors will have a higher perception of mentoring effectiveness than protégés that have been separated for a longer duration.

Geographic Separation

Ideally, the mentor-protégé dyad strengthens as the protégé interacts with the mentor by discussing problems and setting personal and work goals in order to obtain career and psychosocial benefits (Kram, 1985; Noe, 1988). However, a number of events may occur that make the mentor-protégé relationship more difficult to maintain, and therefore, cause a redefinition of the relationship. Some events cited by Ragins and Scandura (1997) that may indicate a redefinition of the relationship includes (a) mentors leaving the organization, (b) protégés leaving the organization, (c) mentors and protégés no longer working together, and (d) mentors or protégés are being transferred. Collectively, these events are known as geographic separation.

Ragins and Scandura (1997) found 70% of all mentoring relationships terminate because of geographic separation. However, geographical separation may not necessarily be a negative occurrence. Kram (1985) proposed the timing of the separation may play a significant role in a protégé's development. If the separation occurred in a timely matter, when both parties are ready, geographic separation may likely be beneficial because it gives the protégé a chance to test his or her independence. However, if geographic separation does not occur in timely matter, mentors and protégés are likely to develop feeling of resentment and distrust. Viator and Pasewark (2005) found mentoring tensions were reportedly higher for mentoring relationships that continued beyond their emotional separation. Protégés in these prolonged mentoring relationships felt constrained by their mentor's physical proximity, and therefore, became resentful of their lack of autonomy.

Alternatively, the mentors and protégés that were geographically separated before they were ready may experience a sense of premature separation (Kram, 1985; Viator &

Pasewark, 2005). Premature separation is a situation where protégés are not given the chance to fully develop under the care of their mentors. Mentors in these situations may feel frustration, while protégés in these situations may feel abandonment (Kram, 1985).

The objective then is to prevent a premature separation by sustaining the relationship across geographical distances. Blake-Beard (2001, p. 5) clearly articulated this precarious situation when she said "the challenge is how to move the relationship from a company-mandated and externally structured interaction to one that is powered solely by the mentor and the protégé". To sustain the relationship, Blake-Beard (2001) theorized that the more effectively the mentor-protégé utilized their time together to build upon similar interests and demands, the greater the chances the relationship would survive a separation. Therefore, I propose:

Hypothesis 3: Increased perceptions of mentoring effectiveness will increase the likelihood that protégés who are geographically separated from a previous formal mentor will consider the formal mentor a current informal mentor.

In this third hypothesis, a sudden change in perceive mentoring effectiveness between their formal relationship and their post relationship may likely be the best indicator of how individuals select their current informal mentors. As noted earlier, an effective mentor-protégé relationship would have the protégé interacting with a mentor by discussing and working problems, asking questions, and setting goals (Kram, 1985; Noe, 1988). A mentor-protégé dyad that continues to addresses these issues and builds upon shared interests once separated is more likely to survive the redefinition phase (Kram, 1983, 1985; Blake-Beard, 2001).

In the following section, the commonly used mentoring media (i.e., face-to-face, electronic communication, written communication, and telephone interaction) will be discussed in detail and in terms of their impact on perceptions of mentoring effectiveness. The follow section also introduces the remaining hypotheses.

Communication Media

Mentors can facilitate mentoring through a variety of methods. Daft, Lengel, and Trevino (1987) and Van Scotter et al. (2003) proposed a communication continuum where communication occurs through four means (a) face-to-face, (b) telephone, (c) written correspondence, and (d) computer output (to include e-mail). Each of these means becomes an instrument, a medium for effective communication. Effective mentoring, like effective communication, involves skills in listening, giving and receiving feedback, and managing conflict (Kram, 1985).

Communication types. Daft et al. (1987) determined from a sample of middle- and upper-level managers that the communication medium that facilitate the most communication understanding (media richness) in ascending order are face-to-face interactions, telephone conversations, written correspondences, and finally computer outputs (e.g., generic printouts and limited e-mails). As the most media rich medium, face-to-face interaction is believed to be the most effective means of mentoring because it allows instantaneous feedback and provides a means of communicating visual clues for nonverbal expressions (Daft et al., 1987; Van Scotter et al., 2003). Furthermore, as the media believed to be the richest, face-to-face communication reduces the need for frequent communication as more understanding occurs through face-to-face communication than through any other media (Daft et al., 1987).

However, face-to-face interaction may not always be a viable means of mentoring (Noe, 1988). For example, arranging a face-to-face meeting when the mentor and protégé are geographically separated is often difficult because of conflicting schedules and or possible cost prohibitions associated with bringing the two together (Burgstahler & Cronheim, 2001). Therefore other communication media, such as telephone, written correspondence, and e-mail are necessary to continue the mentoring relationship.

Mentors and protégés could continue their relationship through a series of telephone calls. Telephone interaction makes mentoring possible because it provides the instant feedback that Kram (1985) proposed as being necessary for an effective relationship. However, telephone interaction, like other media, is not immune to the potential failures of implementation (e.g., time limitations, incompatible work schedules, physical separation, and lack of interaction). In fact, the problems are compounded when mentors and protégés are forced to communicate by only one means. A synthesis of this article suggests perceptions of mentoring or communication effectiveness may decrease because of possible misunderstandings from a lack of visual or physical clues that mentors or protégés would normally give each other (Daft et al., 1987).

Written correspondence between mentors and protégés could be an effective communication tool (Daft et al., 1987). Written correspondence is capable of conveying mentoring feedback and providing the management actions necessary to maintain an effective mentoring relationship; although, like the telephone, written correspondence lacks the visual and physical clues that make face-to-face communication so effective. Timeliness of communication can also be an issue with this communication medium.

Mentors and protégés who use written correspondence may have to consider lengthy delivery and response times.

The final communication media of interest electronic communication (e-mail), like telephone communication or written correspondence, provides mentors and protégés with a means of communicating over great distances. However, e-mail is typically a quicker and more convenient means of communication as long as both parties have the applicable technologies (e.g., computers, internet connections, knowledge to use computers) (Brugstahler & Cronheim, 2001). In addition to speed and convenience, e-mail provides both the mentor and protégé with a record of their correspondence. Furthermore, e-mail is cost effective in that users can send lengthy e-mail messages as easily as they can send short e-mails.

Existing literature has given some credence to the concept of electronic mentoring to include e-mail. Van Scotter et al.'s (2003) study of 71 Air Force officers found e-mail could be a valuable communication and mentoring tool. Hamilton and Scandura (2003) made a similar conjecture when they suggested e-mail could be an effective means of mentoring. Higgins and Kram (2001) suggested electronic mentoring was capable of creating new mediums for the implementation of career and psychosocial functions.

However, contrary to these findings, Daft et al. (1987) came to a vastly different conclusion. Daft et al. (1987) suggested that while computer output may be capable of reaching larger audiences, its weakness was its inability to transmit information in a way that facilitates greater understanding. This weakness may be associated with the inability to receive or transmit nonverbal expressions. Therefore, they hypothesize that generic computer output was the least valuable form of communication. A possible reason for

this contradiction was a difference in e-mail access. At the time Daft et al. (1987) performed their communication and media richness studies, e-mail was still in its early stages and not readily available to all the participants surveyed, while Van Scotter et al.'s (2003) study was based on data collected from in 1997 by Gibson's study of military officers that had more ready access to e-mail.

Yet to argue that one method is more effective than the other is a moot point, since mentoring seldom occurs in a vacuum and generally involves several methods within the communication spectrum. Mentors use all four media to teach, observe, listen, demonstrate, empathize, and respond to a protégé's behavior (Van Scotter et al., 2003). As the situation dictates (e.g., scheduling conflicts, geographic separation), mentors and protégés would use the method that best serves their purpose.

Communication frequency. Frequency of contact also plays a significant factor in determining a protégé's perception of mentoring effectiveness. Chao et al. (1992), Fagenson-Eland et al. (1997), and Van Scotter et al. (2003), all came to a similar conclusion when they suggested mentors were more likely to communicate more frequently with competent protégés. Similarly, the authors found increased frequency of communication increased the protégés perceptions of mentoring effectiveness.

From these findings, I propose to investigate how frequency of communication for each media (i.e., face-to-face, telephone, e-mail, written correspondence) would influence the perceived mentoring effectiveness of mentors and protégés who are geographically separated. Given that past research has suggested those in effective mentoring relationships communicate more frequently than those in ineffective mentoring relationships (Fagenson-Eland et al., 1997), I also suggest that those in past

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effective mentor-protégé relationships would continue to communicate with their former

mentors. However, I suggest that at the onset of the mentor-protégé redefinition phase,

there is a natural atrophying of mentoring effectiveness, where perceived mentoring

effectiveness would decline as the length of separation increases.

Similarly, Kram (1983, 1985) suggests after initial separation, protégés generally

require less mentoring and often desire to act with more independence. However, as time

progresses, the protégés may reassess their needs and determine their former mentors

may be of further assistance in their career progression. In order to obtain further

assistance, protégés may use various communication media (e.g., e-mail, telephone,

written correspondence, and face-to-face) to facilitate the desired mentoring. Therefore,

for the final hypotheses, I propose the following:

Hypothesis 4a: Frequency of e-mail will influence the relationship between

duration of separation and mentoring effectiveness such that the effects of

mentoring effectiveness will be greater for respondents who have higher

frequency of e-mail than those that had lower frequency of e-mail.

Hypothesis 4b: Frequency of telephone will influence the relationship between

duration of separation and mentoring effectiveness such that the effects of

mentoring effectiveness will be greater for respondents who have higher

frequency of telephone than those that had lower frequency of telephone.

Hypothesis 4c: Frequency of written correspondence will influence the

relationship between duration of separation and mentoring effectiveness such that

the effects of mentoring effectiveness will be greater for respondents who have

higher frequency of written correspondence than those that had lower frequency of written correspondence.

Hypothesis 4d: Frequency of face-to-face will influence the relationship between duration of separation and mentoring effectiveness such that the effects of mentoring effectiveness will be greater for respondents who have higher frequency of face-to-face than those that had lower frequency of face-to-face.

These hypotheses suggest the individual communication media could effectively moderate the current perceptions of mentoring effectiveness over time.

Summary

The typical mentoring relationship transitions through four distinct phases (i.e., initiation, cultivation, separation, and redefinition). However, there are events, like geographic separation, that can accelerate the natural transition. By geographically separating the mentor and protégé, their relationship would by pass whatever phase of mentoring it was at and proceed straight to the redefinition phase (Kram, 1985; Ragins & Scandura, 1997).

The final phase of mentoring (i.e., redefinition) is then defined by a period of uncertainty. It is at this crossroad where mentors and protégés decide to continue or to terminate the mentoring relationship. If the decision is to continue, the question then becomes how often and through what media (e.g., e-mail, telephone, written correspondence, and face-to-face). The decision becomes even more complicated when the separation occurs prematurely.

Protégés may feel lost or abandoned as a result of premature separation. Furthermore, when protégés are separated from their mentors, past mentoring methods may no longer be readily available. Past mentor-protégé relationship relied on mentors and protégés being within close proximity to have face-to-face communication. If mentors and protégés are geographically separated, face-to-face communication may no longer be the most effective means of communication. Therefore, a new paradigm is required. To continue the relationship, geographically separated mentors and protégés should then find a communication media capable of sustaining that relationship by means other than face-to-face interaction (e.g., electronic communication, telephone, and written correspondence)

CHAPTER 3

METHODOLOGY

The chapter begins with a description of survey administrative procedures and is

followed by a summary of respondent demographics. The chapter ends with a

description of the measures used within the instrument.

Procedures

Data were collected via an 83-item survey administered to two groups of military

personnel at an USAF graduate school, also known as the Air Force Institute of

Technology (AFIT). The survey was first administered at the end of a mass briefing to

321 graduate students (sample 1) with an expected graduation date of March 2006. The

researcher provided verbal instructions on survey completion to respondents and was

available to answer questions during the administration period. Survey participation was

strictly voluntary, and no identifying information was collected from respondents.

Respondents were given approximately 30 minutes to complete the survey. Surveys were

collected by the researcher at a central collection point.

The survey was distributed a second time three weeks later to a separate sample

population during a mass briefing. For the second administration, the researcher

requested only those 250 graduate students (sample 2) with an expected graduation date

of March 2005 take the survey. The researcher again provided verbal instructions to the

respondents. Due to an unanticipated time constraint, respondents were asked to

complete the survey after the briefing and return the completed instrument to a pre-

identified survey collection point. Two follow-up messages were electronically sent to

sample members. One message was sent immediately following the mass briefing, and a

second message was sent one week later. Each message included a request for

participation, a repeat of the survey instructions, and an electronic copy of the survey.

Respondents were given two weeks to complete and return a hard copy of the survey.

Hard copies were requested to maintain respondent anonymity.

Of the 321 surveys distributed to the first respondent group, a 71.3% ($n = 229$)

response rate was achieved. Of the surveys distributed to the second group of

participants, a 21.6% ($n = 54$) response rate was achieved. Forty of the 54 surveys were

returned following the first follow-up message, and the remaining 14 surveys were

returned following the second reminder. Refer to Appendix A for the Perceived

Mentoring Effectiveness Survey.

Insert Appendix A about here

The low response rate from the second sample raised potential nonresponse bias

concerns. Lambert and Harrington (1990) suggest three approaches to nonresponse bias:

(1) prevent it from happening, (2) compare the nonrespondents with the respondents, and

(3) survey the nonrespondents to determine size and potential biases. Options 1 and 3

were not viable. Therefore, a visual comparison of the two sample populations was

completed. It revealed that the collected sample may be an accurate representation of the

2005 graduate student population based on similar demographics, with the exception of

rank. Sample demographics will be discussed in further detail in the subsequent

paragraphs, while nonresponse bias will be further discussed in the limitations section of

Chapter 5.

Participants

　　Sample 1. The first sample was comprised of graduate students in an 18-month graduate program at AFIT that began in August 2004. The graduation date for these participants was anticipated in March, 2006; thus, this sample was referred to as the 06M sample. The average age of the 06M sample was 29 years of age with 20 years being the lowest and 43 years being the highest age. The 06M sample had 86.5% males and 13.5% females. The 06M class had 1.3% field grade officers (i.e., majors), 95.1% company grade officers (i.e., captains, 1st lieutenants, and 2nd lieutenants), and 3.6% enlisted (i.e., master sergeants). There were 183 out of 229 05M respondents who were geographically separated from their previous supervisors. Refer to Appendix B, Table B1 for additional demographics data.

Insert Table B1 about here

　　Sample 2. The second sample was also comprised of graduate students in an 18-month graduate program at AFIT; however, the second sample began their graduate program in August 2003. The graduation date for these students was anticipated in March, 2005; thus, this sample was referred to as the 05M sample. The average age of the 05M sample was 31 years of age with 22 years being the lowest and 41 years being the highest age. The majority of 05M respondents were male (85.2%), while 14.8% were female. The 05M class had 14.8% field grade officers (i.e., majors), 81.4% company grade officers (i.e., captains, 1st lieutenants, and 2nd lieutenants), and 1.9% enlisted (i.e., master sergeants). Fifty of the 05M respondents were geographically separated from their previous supervisors. Refer to Appendix B, Table B1 for more demographics data.

Insert Table B1 about here

Combined sample. Due to the disproportionate response rates between the geographically separated respondents in samples 1 and 2, (n = 183 and 50, respectively), a random sample of 50 cases was selected from sample 1 and merged with the 50 cases from sample 2. The combined sample (n = 100) was the representative sample used for the analyses of hypotheses 1 through 4.

The average age for the combined sample was 30 years of age with 22 years being the lowest and 41 years being the highest age. The combined sample had 84% males and 16% females sample composition. The combined sample had 12% field grade officers (i.e., majors), 86% company grade officers (i.e., captains, 1st lieutenants, and 2nd lieutenants), and 2% enlisted (i.e., master sergeants). Refer to Appendix B, Table B2 for additional demographics data.

Insert Table B2 about here

Measures

Mentoring effectiveness (ME). The ME scale is designed to measure the respondents' perceived amount of career development and psychosocial support obtained. The 21 item ME scale used was a modified version of Tepper, Shaffer, and Tepper's (1996) original ME scale which Gibson (1998) modified in her research effort involving military respondents. Tepper, et al. (1996) and Gibson (1998) both reported a reliability estimate of .92.

The ME scale used in this survey (Items 24-44) measures how the respondents perceived the formal mentoring they received from their previous supervisor at their last assignment. For the purpose of this study, a previous supervisor was defined as a respondent's last formal mentor, in accordance with AFI 36-3401.

Protégés rated their last supervisors' mentoring effectiveness using a 5-point Likert-Type scale, anchored from 1 (not at all) to 5 (a very large extent). A sample question for last supervisor's ME was, "(Has your last supervisor) given you projects or tasks that have prepared you for higher positions?" A new variable was then created, Mentoring Effectiveness at Last Assignment, Previous Supervisor (ME LAPS), to reflect the computed average value of the 21 item ME scale. Coefficient alpha for this study was .94 ($M = 3.13$, $SD = 0.89$, and $n = 100$).

The same 21-item ME scale was used to measure how effective respondents perceived their current informal mentoring relationships were with their previous supervisors (Items 58-78). As previously indicated, the last supervisor was considered the formal mentor. Respondents were asked to answer the question, "Do you consider your previous supervisor your current mentor?" If respondents indicated that their previous supervisor (formal mentor) was a current mentor, the previous supervisor was considered the current informal mentor. Participants rated the perceived mentoring effectiveness of their current informal mentor with a 5-point Likert-Type scale, anchored from 1 (not at all) to 5 (a very large extent). A new variable labeled, Mentoring Effectiveness at Current Assignment, Previous Supervisor (ME CAPS), was created to reflect the computed average value of this 21 item ME scale. Coefficient alpha was .97 ($M = 2.06$, $SD = 1.14$, and $n = 90$).

Work-related contact time (WRCT). Eight-items were adapted from Gibson's

(1998) and Van Scotter's (1996) original WRCT to assess the amount of time (hours per

week and number of contact per week) the respondent came in contact with his or her

mentor (Items 45-52). A sample question was, "When communicating with your

pervious supervisor during an average week, how many times was / is the contact via e-

mail?" Work-related contact time was the average response of the eight items. Gibson

(1998) reported a reliability estimate of .88. The reliability estimate for this study was

.79 ($M = 4.43$, $SD = 4.96$, and $n = 97$). Although the reliability estimate for this study

was below that of Gibson (1998), Peterson (1994) sites Nunnally's (1978) theoretical

reliability estimate of .7 as the minimal acceptable reliability for research.   Therefore, the

reliability of this measure should be acceptable. The range of mean values for this study

was from 0.25 to 30.63 contacts per week.

Respondents were also asked to respond to the items associated with WRCT

regarding the actual amount of contact and the preferred amount of contact they would

like to have with their previous supervisors (Items 45-52). The coefficient alpha for

actual and preferred WRCT was .84 ($M = 0.28$, $SD = 1.02$, and $n = 81$) and .83 ($M = 0.62$,

$SD = 1.51$, and $n = 81$), respectively. The range of actual contact was 0 to 7.75 and 0 to

9.69 for preferred contact per week.

Communication media frequency (CMF). Four items (Items 53-56) were created

to measure frequency of communication using four mediums (i.e., e-mail, telephone,

written correspondence, and face-to-face). The purpose of these questions was to

measure a respondent's individual media usage with a previous supervisor for their

previous assignment, current assignment, and preferred interacting at his or her current

assignment. A sample question was, "When communicating with your previous

supervisor during an average week, how many times was / is the contact via e-mail?"

Respondents were asked to give a quantifiable number and frequency (i.e., number of

contact per week) of individual media contact. The range of e-mail contact was 0 to 50

for previous, 0 to 10 for current, and 0 to 10 for preferred contact per week. The range of

telephone contact was 0 to 50 for previous, 0 to 2 for current, and 0 to 2 for preferred

contact per week. The range of written correspondence contact was 0 to 25 for previous,

0 to 0.25 for current, and 0 to 1 for preferred contact per week. The range for face-to-

face contact was 0 to 100 for previous, 0 to 7 for current, and 0 to 10 for preferred contact

per week.

Communication media usage. The communication medium used was measured

when participants responded to a subset of questions dealing with formal ME (Items 24-

44). The purpose of this measure was to determine past and preferred communication

media used when interacting with the respondents' previous supervisor.   For each

question, respondents were asked to select the best response from a set of five choices

(e.g., e-mail, phone, written (not e-mail), face-to-face, and not applicable). An example

question was "(how did your last supervisor) encourage you to try new was of behaving

on the job?" Each medium selected was then recoded as a "1" for being used or a "0" for

not being used. A count variable representing the frequency of use was then calculated

for each communication medium for actual and preferred use.

Mentoring status. Five questions were created to measure a protégé's current and

previous mentoring status (Items 79-83). Participants were given the follow definitions:

(a) Air Force Instruction 36-3401, Air Force Mentoring, establishes mentoring as the

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fundamental responsibility of all Air Force supervisors in order to pass on the principles, traditions, and values of our profession, (b) A mentor is generally defined as an individual with advance experience and knowledge who is dedicated to the career development of his or her protégé, and (c) A protégé is a junior person who the mentor takes an interest in. A 5-point Likert-type response format, anchored by 1 (not at all) to 5 (a very large extent), was used to measure the respondent's mentoring status. A sample (or example) question was, "To what extent do you still consider your last supervisor your mentor?" Item 83 required respondents to provide the number of months and years they considered their last supervisor as an informal mentor. The range of values was between 0 and 6.25 years.

Summary

This research examined the perceived mentoring effectiveness of 100 military graduate students who were geographically separated from their mentors. An 83-item instrument collected the sample demographics, past and present perceptions of mentoring effectiveness, work related contact time, and individual media usage. The data from these measures and items were then used in the hypotheses analyses that will be described in the following chapter.

CHAPTER 4

RESULTS

Preface

A summary of the results is provided in this chapter. The first two hypotheses were assessed using an independent t-test. The remaining two hypotheses were assessed with linear regression analysis. Additionally, a correlation analysis of the independent and dependent variables used within this study precedes the discussion of the hypotheses.

Descriptive Information

A correlation analysis between the independent and dependent variables revealed several interesting relationships. First, formal mentoring effectiveness was positively related to informal mentoring effectiveness, current mentoring status, and duration of formal mentoring ($r = .34$, $r = .64$, and $r = .27$, $p < .01$, respectively). Secondly, informal mentoring effectiveness was positively related to current mentoring status ($r = .39$, $p < .01$), but not to any communication media. Finally, the correlation analysis found current mentoring status was positively related to duration of a formal mentoring ($r = .27$, $p < .01$), but not to duration of separation. Results for the correlation analysis are available in Appendix C, Table C1.

Insert Table C1 about here

Tests of Hypotheses

Hypothesis 1. The purpose of Hypothesis 1 was to compare formal mentoring effectiveness of those in longer formal mentoring relationships versus those in shorter formal mentoring relationships. SPSS' (version 12.0) software was used to compute an

independent t-test for Hypothesis 1. The t-test compared the mean difference in ME

LAPS using a variable labeled "duration of mentoring relationship". ME LAPS was

defined as mentoring effectiveness at last assignment by previous supervisor. ME LAPS

represented the respondent's perceived formal mentoring effectiveness. The duration of

mentoring relationship variable consisted of one item, "How long did you work with your

previous supervisor?" (Item 14). A duration of 12 months was used as the separation

point between a "short" and "long" duration. Twelve months represented the upper limit

of the initiation phase and a transitioning point into the cultivation phase (Kram, 1985).

"Short" duration relationships (i.e., time < 12 months) were designed as a "1", while

"long" duration relationships (i.e., time ≥ 12 months) were designed as a "2". The entire

combined sample was used in this analysis ($n = 100$).

The mean difference between the two groups was 0.71 ($p < .01$). Based on these

results, Hypothesis 1 was supported. Those in longer formal mentoring relationships

typically had higher perceptions of mentoring effectiveness than protégés in shorter

formal mentoring relationships. Results for this hypothesis are available in Appendix C,

Table C2.

Insert Table C2 about here

Hypothesis 2. The purpose of Hypothesis 2 was to compare the informal

mentoring effectiveness for those separated from their previous supervisors for a longer

time versus those separated for a shorter time. SPSS' (version 12.0) software was used to

compute an independent t-test. The t-test compared the mean values of ME CAPS. ME

CAPS was defined as mentoring effectiveness at current assignment by previous

supervisor. ME CAPS represents a respondent's perceived informal mentoring effectiveness. The combined sample was divided into two categories using the respondents' class year (Item 3). The more senior class, 05M participants, was recoded with a "1" to represent those separated from mentors for a longer duration (i.e., time ≥ 12 months). The junior class, 06M participants, was recoded with a "2" to represent those who were recently separated from their mentors (i.e., time < 12 months). Since the purpose of this analysis was to study a previous supervisor's current mentoring effectiveness as an informal mentor, the combined sample was filtered to include only those respondents that still considered their previous formal mentors their current mentors. Respondents that answered with a "2" or greater for item 80, "To what extent do you still consider your last supervisor your mentor" were entered into the regression, and those that answered with a "1" were removed. The value "2" was selected because a response of "1" indicated no consideration or "not at all", while a "2" at least indicated some consideration or "To a slight extent". The sample size used in this analysis was 59.

The mean difference between the short separation versus the long separation was 0.27 ($p > .1$). The results from this analysis failed to support Hypothesis 2. The was no statistical evidence to suggest there was a difference in the mentoring effectiveness for individuals separated for a shorter period of time than for individuals separated for a longer period of time. Results for this hypothesis are available in Appendix C, Table C3.

Insert Table C3 about here

Hypothesis 3. The purpose of Hypothesis 3 was to determine how delta ME influenced a protégé's attitude toward his or her previous supervisor; specifically, does

the protégé consider his or her previous supervisor a current informal mentor. Delta ME was defined as the difference between ME LAPS and ME CAPS. It represented a change in mentoring effectiveness over time (i.e., past assignment to current assignment). SPSS' (version 12.0) software was used to compute the regression analysis. The current informal mentor variable was defined by the response to item 80, "To what extent do you still consider your last supervisor your mentor". Delta ME was the independent variable and current informal mentor was the dependent variable.

The model R^2 was insignificant .006 ($p > .05$, $n = 87$). Based on these results, Hypothesis 3 was not supported. An increase in perceived mentoring effectiveness did not significantly predict the degree to which a protégé would perceive his or her pervious supervisor as a current informal mentor. Results for this hypothesis are available in Appendix C, Table C4.

Insert Table C4 about here

Hypothesis 4a. The purpose of Hypothesis 4a was to explore the moderating effects of current e-mail usage and duration of separation on a protégé's current perceptions of mentoring effectiveness. A moderating effect is defined as an interaction between two variables to create an effect on a third variable. SPSS' (version 12.0) software was used to compute the regression analysis necessary to determine the significance of the moderating effect.

A new variable consisting of the cross product term of current e-mail frequency and duration of separation was created. The cross product term represented the interaction between the two variables. Duration of separation for this hypothesis used

respondents' time on station (Item 13) to reflect the length of time they were separated from their previous supervisor / formal mentor. Current e-mail frequency used the respondents' response to actual e-mail now (Item 54). The dependent variable for this analysis was ME CAPS, while the predictor variables for this analysis were the main effect duration of separation, the main effect current e-mail frequency, and the cross product term. Similar to Hypothesis 2, the combined sample was filtered to include only those respondents that considered their previous supervisors as a current informal mentor (Item 80 ≥ 2). Prior to running the analysis the sample size was 48.

An initial analysis of the hypothesis revealed a high variance inflation factor (VIF) for the main effect current e-mail frequency and its cross product (26.59 and 27.53, respectively). A VIF value greater than 2.0 is a potential indicator of multicollinearity. An attempt to correct the multicollinearity was done by using Kleinbreum, Kopper, and Muller's (1988) method of centering. To center a data set, the mean of the data set is subtracted from each individual response within the same measure. The current e-mail frequency's mean value of 0.54 was subtracted from the individual responses to current e-mail frequency (item 54). A new cross product was obtained using the centralized e-mail frequency and duration of separation. The regression was recomputed with ME CAPS as the dependent variable and the main effect duration of separation, the main effect current e-mail frequency (centered), and the new cross product term as the predictor variables.

An evaluation of the cross product's standardized regression coefficient (β) and *p* value did not indicate the cross product term had any significant effect on the dependent variable ME CAPS ($\beta = -.30$, $p = .69$). Additionally, the VIF values remained greater

than 2. Therefore, the results failed to support hypothesis 4a. E-mail frequency was not considered a moderator of the relationship between duration of separation and perceived mentoring effectiveness. Results for this hypothesis are available in Appendix C, Table C5.

Insert Table C5 about here

Hypothesis 4b. The purpose of this hypothesis was to explore the moderating effects of current telephone usage and duration of separation on a protégé's current perceptions of mentoring effectiveness. Hypothesis 4b was analyzed using SPSS' linear regression software. A new variable consisting of the cross product term of current telephone frequency and duration of separation was created. The duration of separation was the same variable used in Hypothesis 4a. Current telephone frequency used the respondents' response to actual telephone now (Item 53). The dependent variable for this analysis was ME CAPS, while the predictor variables for this analysis were the main effect duration of separation, the main effect current telephone frequency, and the cross product term. Similar to Hypothesis 2, the combined sample was filtered to include only those respondents that considered their previous supervisors as a current mentor (Item 80 ≥ 2). Prior to running the analysis the sample size was 48.

An initial analysis revealed high VIF values for the main effect current telephone frequency and its cross product term (6.07 and 6.34, respectively). An attempt to correct for multicollinearity was accomplished using the same methods as described in Hypothesis 4a. The current telephone frequency's mean value of 0.11 was subtracted from the individual responses to current telephone frequency (Item 53). A new cross

product term was obtained using the centralized telephone frequency and duration of separation. The regression was recomputed with ME CAPS as the dependent variable and the main effect duration of separation, the main effect current telephone (centered) frequency, and the new cross product term as the predictor variables.

An evaluation of the cross product's standardized regression coefficient (β) and *p* value did not indicate the cross product term had any significant effect on the dependent variable ME CAPS (β = -.07, *p* = .86).   Additionally, the VIF values remained above 2. Therefore, the results failed to support Hypothesis 4b. Telephone frequency was not considered a moderator of the relationship between duration of separation and perceived mentoring effectiveness. Results for this hypothesis are available in Appendix C, Table C6.

Insert Table C6 about here

Hypothesis 4c. The purpose of this hypothesis was to explore the moderating effects of current written correspondence frequency and duration of separation on a protégé's current perceptions of mentoring effectiveness. Hypothesis 4c was analyzed using SPSS' linear regression software. A new variable consisting of the cross product of current written correspondence frequency and duration of separation was created. The cross-product term represented the interaction between the two variables. The duration of separation was the same variable used in Hypothesis 4a. Current written correspondence frequency used the respondents' response to actual written correspondence now (Item 55). The dependent variable for this analysis was ME CAPS, while the predictor variables for this analysis were the main effect duration of separation,

the main effect current written correspondence frequency, and the cross product term. For reasons similar to Hypothesis 2, the combined sample was filtered to include only those respondents that considered their previous supervisors as a current mentor (Item 80 $\geq$ 2). Prior to running the analysis the sample size was 2.

However, a closer inspection of the results show there were only two respondents that claim they have written or received any written correspondence from their previous supervisors / mentors. Therefore, the analysis could not be conducted because of the limited sample size.

Hypothesis 4d. The purpose of this hypothesis was to explore the moderating effects of current face-to-face frequency and duration of separation on a protégé's current perceptions of mentoring effectiveness. Hypothesis 4d was analyzed using SPSS' linear regression software. A new variable consisting of the cross product term of current face-to-face frequency and duration of separation was created. The cross-product term represented the interaction between the two variables. The duration of separation was the same variable used in Hypothesis 4a and Hypothesis 4b. Current face-to-face frequency used the respondents' response to actual written correspondence now (Item 56). The dependent variable for this analysis was ME CAPS, while the predictor variables for this analysis were the main effect duration of separation, the main effect current face-to-face frequency, and the cross product term. Similar to Hypothesis 2, the combined sample was filtered to include only those respondents that considered their previous supervisors as a current mentor (Item 80 $\geq$ 2). Prior to running the analysis the sample size was 48.

An initial analysis revealed extremely high VIF values for the main effect current face-to-face frequency and its cross product term (575.97 and 576.33, respectively). An

attempt to correct for multicollinearity was accomplished using the same methods as described in Hypothesis 4a. The current face-to-face frequency's mean value of 0.24 was subtracted from the individual responses to current face-to-face frequency (Item 56). A new cross product term was obtained using the centralized face-to-face frequency and duration of separation. The regression was recomputed with ME CAPS as the dependent variable and the main effect duration of separation, the main effect current face-to-face frequency (centered), and the new cross product term as the predictor variables.

An evaluation of the cross product's standardized regression coefficient (β) and p value did not result in the cross product term producing any significant results ($\beta = .88$, $p = .83$). Additionally, the VIF values remained above 2. Based on these findings, the results failed to support Hypothesis 4d. Therefore, telephone frequency was not considered a moderator of the relationship between duration of separation and perceived mentoring effectiveness. Results for this hypothesis are available in Appendix C, Table C7.

Insert Table C7 about here

CHAPTER 5

DISCUSSION

This chapter begins with a discussion of the research results and implications, followed by a discussion of potential limitations associated with the data collection and analyses. The chapter concludes with a discussion of contributions and ideas for future studies.

Hypotheses Discussion

Kram (1985) theorized that during redefinition phase several things could happen: (a) the relationship could terminate, (b) the relationship could continue but at a different level, or (c) the relationship could transition into a peer-like relationship. In many of the cases within this study, geographic separation of the mentors and protégés resulted in a transition from a formal to an informal mentoring relationship. Therefore, it was of particular surprise and some disappointment that the results were not more significant.

Hypothesis 1. The support of Hypothesis 1 was encouraging. Protégés in longer formal mentoring relationships tended to have higher perceptions of mentoring effectiveness than those in shorter formal mentoring relationships. This was similar with Noe's (1988) study that also found the duration of a relationship played a role in determining overall mentoring effectiveness.

Hypothesis 2. The lack of statistical support of Hypothesis 2 was disappointing. The results suggested there may be no difference in perceived mentoring between those recently separated and those separated for a longer period of time. Although, it had seem logical that protégés who were geographically separated from their mentors would experience a natural atrophying of perceived mentoring effectiveness over time.

While the results did not support the hypothesis, the presents of data did show how perceived mentoring effectiveness could continue well beyond the confines of an individual's previous assignment and beyond the period of initial separation. Forty out of the fifty 05M respondents reportedly received some mentoring after being geographically separated from their mentors for a year.

Hypothesis 3. The failure to support Hypothesis 3 was a disappointment but not surprising. The lack of significance in the correlation analysis foreshadowed the results of the hypothesis. Yet, it had seemed likely that an individual who received a greater amount of mentoring at their current assignment than during his or her last assignment would be more inclined to consider his or her previous supervisor a current informal mentor.

This does raise a potentially interesting question. Are attitudes of informal mentoring effectiveness already predisposed at the termination of the formal relationship? Perhaps, a broader conceptualization of what is an informal mentor is needed. Geographic separation redefined the relationship; protégés in this study were no longer bounded to their previous supervisors by organizational policy, yet 66.5% of the combined sample considered their previous supervisors their current informal mentor. Perhaps, it is because protégés do not myopically select mentors based on what they could do for them now but what they could do across the spans of their careers.

Hypotheses 4a-d. The failure to support hypotheses 4a through 4d was also discouraging. Although the correlation analysis revealed no relationship between the individual communication media and informal mentoring effectiveness, it had seemed plausible that the individual communication media could potentially act as moderators to

duration of separation and informal mentoring effectiveness. Existing literature had suggested, face-to-face and e-mail were the most effect communication media (Van Scotter et al., 2003). Furthermore, Chao et al. (1992), Fagenson-Eland et al., (1997), and Van Scotter et al. (2003), all found mentors and protégés communicated more frequently when they deemed each other competent. It seemed logical to conclude, once the protégés were geographically separated from their mentors, e-mail would continue to play a significant role in their informal mentoring, especially over time.

However, this was not the case. E-mail, telephone, and face-to-face were all insignificant moderators of duration of separation and perceived mentoring effectiveness. Perhaps, the failure of these media was a result of incongruent job demands. Kram (1985) had suggested an informal mentoring relationship formed as a result of shared interest and desires. Perhaps, protégés in different environments than their supervisors (e.g., academic versus operational) may not require the expertise of their previous supervisors. Therefore, communication may only occur as necessary and at a minimal level to obtain (a) psychosocial support and (b) access to future career developmental. Finally, the lack of data points for written correspondence was not surprising. The speed and ease of communication media today make interaction by written correspondence more of a hobby than an effective means of communication.

Limitations

Several limitations of this study should be discussed. The first limitation involves self reporting data. The data collected was based on the respondents self reporting what they believed to be their current mentoring conditions and communication frequencies.

The potential for bias occurs with common method variance and or social desirability (Podsakoff & Organ, 1986).

Common method variance issues may arise when several measurements come from the same source. A contamination of one source may also contaminate the measures. This bias may occur because there was no way of verifying the respondents' attitudes about mentoring effectiveness or frequency of contact. An attempt was made to correct for this problem by standardizing the survey administration procedures and having the researcher available for respondents to clarify any confusing survey items.

There may also be an issue with social desirability. The respondents may have answered in a way that they believe the researchers wanted to hear, especially, since many of the survey items dealt with retrospective data. Existing research have found the quality of data deteriorates with the length of the recollection period (Beckett, DaVanzo, Sastry, Panis, & Peterson, 2001). Furthermore, current events or attitudes may have clouded the protégés' perceptions for the better or for the worse. Social desirability becomes an issue if respondents feared their results would be reported back to their supervisors. Respondents, in these situations, may distort their responses. To prevent this from happening, the researcher stressed the anonymity of the survey in both the verbal and written instructions. Respondents were also told to return a hard copy of the survey without any self identifying marks. Additional efforts were taken to minimize the adverse effects associated with social desirability by providing the researcher's contact information in the event the respondents had any questions about the survey or maintaining their anonymity.

The second potential limitation involves sample representation. The sample population consisted largely of educated white Air Force company grade officers seeking advance academic degrees. This sample does not include a large number of enlisted or field grade officers. Furthermore, the sample may not account for potential poor performers or those that had received disciplinary actions. The graduate school's competitive selection process most likely eliminated many of the poor performers from obtaining admission. Alternatively, the lack of field grade officers and enlisted personnel may be the result of incompatible career plans; it may not have been in their best career interest to attend a graduate school at the time. Participants in either of these categories (especially the poor performers) may likely rate their mentors differently than Air Force graduate students comprised largely of company grade officers. Therefore, the sample may not be a true representation of the USAF or organizations external to the military.

As an additional population sample concern, the samples were collected in different waves. The extremely low response rate for sample 2 raised potential nonresponse bias concerns. Using Lambert and Harrington (1990) suggestion, a comparison of the two demographics was done. The initial results were promising; sample 2 demographics were similar to sample 1 demographics. The caveat being, Lambert and Harrington (1990) warn demographics comparison does not directly account for nonresponse bias on survey items. Lambert and Harrington (1990) suggest the best approach is to conduct a follow up survey of the nonrespondents. However, time constraints prevented this method from being done. Similarly, the intentional loss of 133 cases from the 06M sample was a regrettable but necessary step to take to combine the data sets. If additional time was available, the preferred approach would have been to

reapproach the 05M population to obtain additional survey responses. Therefore, it can only be noted and that caution should be taken when generalizing results with potential nonresponsive bias (Lambert & Harrington, 1990).

Finally, there was a problem with multicollinearity for Hypotheses 4a, 4b, and 4d. Kleinbaum et al. (1988) centering technique was used to account for the multicollinearity. However after centering the data, multicollinearity remained an issue. Wang (1996) suggests three additional approaches to dealing with multicollinearity: (1) utilizing priori information into the model, (2) obtain additional or new sample data, and (3) dropping a variable(s) from the model. If the coefficient of the variable was calculated in a prior estimate, option 1 suggests using that value as the actual coefficient. For example, Hypotheses 4a through 4d could have used the respondent's class year to represent duration of separation (i.e., 06M < 12 months and 05M ≥ 12 months). However, this option would have turned the duration of separation variable into a dichotomous response, while the remaining variables were continuous. A regression analysis with both continuous and dichotomous data would have further reduced the reliability of the results. Therefore, this option was not taken. Option 2 suggests taking additional or new sample data. Due to time constraints, this option was also not available. Finally, option 3 suggests dropping a variable from the model. This option was not taken because all three variables were relevant to determining the moderating effects of the individual communication media. Therefore, for the purpose of this research effort, multicollinearity can only be noted and caution should be taken when making generalizations with the results.

Contributions

This study was an initial effort to study the potential implications of communication media and its effects on sustaining a geographically separating mentor-protégé relationship. While there were individual studies that examined mentoring and communication media (Van Scotter et al., 2003), geographical separation and termination (Ragins & Scandura, 1997), or mentoring tensions and geographically separation (Viator & Pasewark, 2005), there were no existing research that explored the possibility of sustaining an existing relationship beyond its physical confines through various communication media. Therefore, this research contributed to the existing body of mentoring knowledge by synthesizing and further exploring what is currently know about mentoring, communication, and the redefinition phase. Furthermore, it breaks new ground by identifying protégés attitudes toward a geographically separated informal mentor. Hopefully, the research efforts of this study will be able to aid future researcher in their study of mentoring and geographic separation.

Future Research

This study examined the relationship between four communication media (i.e., e-mail, telephone, written correspondent, and face-to-face), duration of separation, duration of formal mentoring, and perceptions of mentoring effectiveness for geographically separated protégés. Through the process of collecting and analyzing the data, several interesting results occurred. First, formal mentoring was deemed more effective over longer durations. Second, protégés may have developed preconceived notions of their informal mentors' capabilities at the end of their formal relationship. Third, protégé selection of an informal mentor may not be dependent upon any perceived difference

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between last assignment and current assignment mentoring effectiveness. Finally, the frequency of communication may not play a significant role in improving or diminishing a protégé perception of his or her mentor.

Future studies could expand upon these finding by studying protégé selection of mentors. Specifically, future researchers could study the perceived weight that protégés assign to the individual ME item. For example, do geographically separated protégés value "role modeling" more than "sponsorship opportunities." Similarly, such a study could incorporate and explore how protégé selections are influenced by the Leader-Member Exchange Theory. Protégés that had a high quality formal relationship (e.g., relationships where responsibilities, decision making, and access to resources were shared between mentors and protégés) may be more willing to perceive their previous supervisor a current mentor than someone who did not (Burns & Otte, 1999). This study could then provide a better understanding of a protégé's mentor selection process and increase the likelihood of identifying the sustainable relationships that are prematurely separated.

Future studies could also expand upon these results by conducting a longitudinal study on the same 06M participants. Such a study would be beneficial in three ways: (a) it would be a more effective method of obtaining time series data, (b) it could potentially eliminate nonresponse bias, and (c) it could explore how congruent job demands influence the need for mentoring and communication frequency. By resurveying the respondents, the researcher would have current data not influenced by biases associated with retrospective questioning. Furthermore, a longitudinal study could minimize nonresponse bias by taking a more aggressive approach to data collection. Lambert and

Harrington (1990) suggest stimulating interest by sending multiple personal and formal requests for participation prior to the survey period. Lambert and Harrington (1990) also suggested the researchers should not stop after the first response but to seek additional avenues to survey the nonrespondents. Finally, a longitudinal study could give researchers valuable data regarding communication between mentors and protégés in similar job demands. Such a survey could potentially reveal the frequency and types of communication that occur between mentor and protégé (e.g., Are communication for career development or psychosocial support?)

Conclusion

This thesis serves as one of the first research efforts to explore the effects of communication media on geographically separated mentors and protégés. As a whole the results for this study is encouraging to the Air Force. The data suggest the Air Force mentoring program does work. The individuals in longer formal relationships perceive themselves as being in more effective relationships than those in shorter relationships. The implications of this finding suggest junior personnel may perceive themselves as being better prepared for increased job responsibilities as they spend more time with their formal mentors. Furthermore, this study suggests Air Force mentoring is capable of developing and grooming their junior personnel well beyond the confines of their current duty assignment. Therefore, to answer the question "does distance really matter", the answer is no.

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Appendix A
Perceived Mentoring Effectiveness
Survey

Perceived Mentoring Effectiveness

Survey

Chen Y. Su, Captain, USAF

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY

AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

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Perceived Mentoring Effectiveness Survey

Purpose: To conduct research on the relationship between communication media and perceived mentoring effectiveness when mentors and protégés are geographically separated.

Participation: We would greatly appreciate your participation in our data collection effort. Your participation is COMPLETELY VOLUNTARY. Your decision to not participate or to withdrawal from participation will not jeopardize your relationship with the Air Force Institute of Technology, the U.S. Air Force, or the Department of Defense. Respondents are asked to provide mother's maiden name to facilitate matching of surveys in the event future research is conducted beyond the scope of this project.

Confidentiality: We ask for some demographic information in order to interpret results more accurately. ALL ANSWERS ARE ANONYMOUS. No one other than the research team will see your completed questionnaire. Findings will be reported at the group level only. Reports summarizing trends in large groups may be published.

Contact information: If you have any questions or comments about the survey contact Capt Chen-Yen Su at the telephone numbers, fax, mailing addresses, or e-mail addresses listed below. You may take the cover sheet with the contact information for future reference.

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INSTRUCTIONS
- Base your answers on your own thoughts and experiences
- Please print your answers clearly when asked to write in a response or when providing comments
- Make dark marks when asked to use specific response options (feel free to use an ink pen)
- Avoid stray marks. If you make corrections, erase marks completely or clearly indicate the intended response if you use an ink pen

MARKING EXAMPLES

Right
●

Wrong
⊗ ⊘ ⊙

This section contains items that are important for statistical purposes. Respond to each item by WRITING in the information requested or FILLING in the corresponding circles that best describe you.

1. Your gender?

    ○ **Male**   ○ **Female**

2. Which AFIT class are you assigned to?
 (Select the circle that represents your anticipated graduation date)

    ○ **2004**   ○ **2005**   ○ **2006**

3. Your AFIT program:

    ○ **ENV**   ○ **ENP**   ○ **ENC**   ○ **Other_____**
    ○ **ENS**   ○ **ENG**   ○ **ENY**

4. Your race?

    ○ **White**   ○ **Hispanic**   ○ **Native American**
    ○ **Black**   ○ **Asian**   ○ **Other_____**

5. Your age:
    Years: _____

6. Your rank:

    ○ **E-7** ○ **O-1** ○ **O-1E** ○ **O-4** ○ **Civilian – WG _____level**
    ○ **E-8** ○ **O-2** ○ **O-2E** ○ **O-5** ○ **Civilian – GS _____level**
    ○ **E-9** ○ **O-3** ○ **O-3E**   ○ **Civilian – GM _____level**

7. Your source of commission:

    ○ **OTS**   ○ **ROTC**   ○ **USAFA**
    ○ **Direct Commission**   ○ **Enlisted**   ○ **N/A**

8. Your highest education level completed:

    ○ **Bachelor Degree**   ○ **Graduate Degree**   ○ **Doctorate**   ○ **Post Doctorate**
    ○ **Professional**

9. Your primary duty AFSC/MOS/RATE:
    _____

10. Time in current AFSC/MOS/RATE:
    Years: _____Months: _____

11. Your marital status:

    ○ **Married**   ○ **Divorced**   ○ **Never Married**   ○ **Widow/Widower**

12. Your highest level of professional military education completed:

    ○ **SOS**   ○ **IDE**   ○ **SSS**   ○ **None**
    ○ **ALS**   ○ **NCOA**   ○ **SNCOA**

13. Your time on station:
    Years: _____ Months:_____

<p align="center">Questions in this section refer to your <u>Previous Supervisor</u></p>

14. Your previous supervisor's rank?

  ○ **E-7** ○ **O-1** ○ **O-1E** ○ **O-4** ○ **O-7 or higher** ○ **Civilian – GM_____level**
  ○ **E-8** ○ **O-2** ○ **O-2E** ○ **O-5** ○ **Civilian – WG_____level**
  ○ **E-9** ○ **O-3** ○ **O-3E** ○ **O-6** ○ **Civilian – GS_____level**

15. How long have you known your previous supervisor?
    Total Years: _____Months: _____

16. How long did you work for your previous supervisor?
    Total Years: _____ Months: _____

17. Your previous supervisor's gender:

    ○ **Male**   ○ **Female**

18. Your previous supervisor's race:

    ○ **White**   ○ **Hispanic**   ○ **Native American**
    ○ **Black**   ○ **Asian**   ○ **Other_____**

19. Your previous supervisor's marital status?

    ○ **Married**   ○ **Divorced**   ○ **Never Married**
    ○ **Widow/Widower** ○ **Don't Know**

20. Your previous supervisor's age: (If you're not sure, please guess and then write
the letter "G" next to your guess) **Years: _____**

21. Is your previous supervisor currently located at a different base than you are at now?

    ○ **Yes**   ○ **No**

22. From the 14-shared characteristics listed below, please mark any and all that you believe you share
with your previous supervisor. After you have marked the shared characteristics, please rank order the
characteristics. Use "1" to indicate the characteristic that you believe you share the most with your
previous supervisor

    ○ **Career Field_____**   ○ **Source of Commission_____**
    ○ **Gender_____**   ○ **Anticipate having Similar Career Path_____**
    ○ **Age_____**   ○ **Previous Career-Related Experience_____**
    ○ **Marital Status_____**   ○ **Friendship_____**
    ○ **Religion_____**   ○ **Similar Off-Duty Interests_____**
    ○ **Ethnic Background_____** ○ **Other (please specify):_____**
    ○ **Education Level_____**   ○ **None**

23. What is your current means of communication with your previous supervisor? Mark all that apply

    ○ **Telephone**   ○ **Email**
    ○ **Written correspondence (not email)**   ○ **Face-to-face**
    ○ **No contact**   ○ **Do not desire contact**

We would like to ask you some questions relating to how you generally feel about your relationship with your <u>Previous Supervisor</u>. For each statement, please fill in the circle for the number that indicates the extent to which you agree with each statement. Use the scale below for your responses.

During your <u>Last Assignment</u> to what extent did your Previous Supervisor…	① Not at All ② To a Slight Extent ③ To Some Extent ④ To a Large Extent ⑤ To a Very Large Extent	During your last assignment, what communication method did your supervisor primarily use to accomplish items to the left (Please circle the best response) E-Email P-Phone W-Written (not email) F-Face to Face N-Not Applicable	What method would you have preferred? (Please circle the best response) E-Email P-Phone W-Written (not email) F-Face to Face N-Not Applicable
24. Encourage you to try new ways of behaving on the job?	① ② ③ ④ ⑤	E P W F N	E P W F N
25. Discuss your questions or concerns regarding feelings of competence, commitment to advancement, relationships with peers and supervisors or work/family conflicts?	① ② ③ ④ ⑤	E P W F N	E P W F N
26. Serve as a role model?	① ② ③ ④ ⑤	E P W F N	E P W F N
27. Demonstrate good listening skills in your conversations?	① ② ③ ④ ⑤	E P W F N	E P W F N
28. Convey feelings of respect for you as an individual	① ② ③ ④ ⑤	E P W F N	E P W F N
29. Encourage you to talk openly about anxieties and fears that detract you from work?	① ② ③ ④ ⑤	E P W F N	E P W F N
30. Share personal experiences as an alternative perspective to your problem?	① ② ③ ④ ⑤	E P W F N	E P W F N
31. Display attitudes and values similar to your own?	① ② ③ ④ ⑤	E P W F N	E P W F N

During your Last Assignment to what extent did your Previous Supervisor…	① Not at All ② To a Slight Extent ③ To Some Extent ④ To a Large Extent ⑤ To a Very Large Extent	During your last assignment, what communication method did your supervisor primarily use to accomplish items to the left (Please circle the best response) E - Email / P - Phone / W – Written (not email) / F – Face to Face / N - Not Applicable					What method would you have preferred? (Please circle the best response) E - Email / P - Phone / W – Written (not email) / F – Face to Face / N - Not Applicable				
32. Assign responsibilities to you that have increased your contact with people who will judge your potential for future advancement?	① ② ③ ④ ⑤	E	P	W	F	N	E	P	W	F	N
33. Reduce unnecessary risks that could have threatened your opportunities for promotion?	① ② ③ ④ ⑤	E	P	W	F	N	E	P	W	F	N
34. Help you meet new colleagues?	① ② ③ ④ ⑤	E	P	W	F	N	E	P	W	F	N
35. Give you projects or tasks that have prepared you for higher positions?	① ② ③ ④ ⑤	E	P	W	F	N	E	P	W	F	N
36. Help you finish projects or tasks to meet deadlines that otherwise would have been difficult to complete?	① ② ③ ④ ⑤	E	P	W	F	N	E	P	W	F	N
37. Encourage you to prepare for advancement?	① ② ③ ④ ⑤	E	P	W	F	N	E	P	W	F	N
38. Give you projects that present opportunities to learn new skills?	① ② ③ ④ ⑤	E	P	W	F	N	E	P	W	F	N
39. Give projects that have increased your contact with higher-level manager?	① ② ③ ④ ⑤	E	P	W	F	N	E	P	W	F	N
40. Protect you from working with other managers or work units before you knew about their likes/dislikes, opinions on controversial topics, and the nature of the political environment?	① ② ③ ④ ⑤	E	P	W	F	N	E	P	W	F	N
41. Keep you informed about what is going on at the higher levels in the organization or how external conditions are influencing the organization?	① ② ③ ④ ⑤	E	P	W	F	N	E	P	W	F	N
42. Provide support and feedback regarding your performance as an officer?	① ② ③ ④ ⑤	E	P	W	F	N	E	P	W	F	N

During your **Last Assignment** to what extent did your Previous Supervisor…	① Not at All ② To a Slight Extent ③ To Some Extent ④ To a Large Extent ⑤ To a Very Large Extent	During your last assignment, what communication method did your supervisor primarily use to accomplish items to the left (Please circle the best response) E - Email P - Phone W – Written (not email) F – Face to Face N - Not Applicable	What method would you have preferred? (Please circle the best response) E - Email P - Phone W – Written (not email) F – Face to Face N - Not Applicable
43. Give you projects that increased written and personal contact with senior officers?	① ② ③ ④ ⑤	E P W F N	E P W F N
44. Interact with you socially outside of work?	① ② ③ ④ ⑤	E P W F N	E P W F N

We would like to ask you some questions regarding the amount of time you spent with your previous supervisor. In the first response column, please indicate the amount of interaction you had during your last assignment. For the second column, indicate the amount of contact you have now. In the last column, indicate the amount of contact you would like to have with your previous supervisor now.

If you did / do not have contact every week, please clearly write the frequency (e.g., once every 2 weeks, once every 3 months) of contact within the corresponding box. (1 contact can be anything from an email to a verbal tasking)

In an average week, how much time did / does your previous supervisor spend ...	During your last assignment	Now (Actual Amount)	Preferred Amount (Now)
45. Coming in contact with you at work?	# of contacts per week: ____	# of contacts per week: ____	# of contacts per week: ____
46. Discussing job-related problems with you?	# of contacts per week: ____	# of contacts per week: ____	# of contacts per week: ____
47. Working with you to complete a task?	# of contacts per week: ____	# of contacts per week: ____	# of contacts per week: ____
48. Seeing the results of your work?	# of contacts per week: ____	# of contacts per week: ____	# of contacts per week: ____
49. Monitoring your progress?	# of contacts per week: ____	# of contacts per week: ____	# of contacts per week: ____

In an average week, how much time did / does your previous supervisor spend ...	During your last assignment	Now (Actual Amount)	Preferred Amount (Now)
50. Coming in contact with you outside of work?	# of contacts per week: _____	# of contacts per week: _____	# of contacts per week: _____
51. Observing you perform a briefing for superiors, subordinates, or peers?	# of contacts per week: _____	# of contacts per week: _____	# of contacts per week: _____
52. Reading material you have written?	# of contacts per week: _____	# of contacts per week: _____	# of contacts per week: _____

Estimate the number of contacts you had / have with your previous supervisor during an average week. If you did / do not have contact every week, please write in the number of contact and frequency (e.g., Once every three months) within the corresponding box. (1 contact can be anything from an email to a verbal tasking)

When communicating with your previous supervisor during an average week, how many times was / is the contact via:	During your last assignment	Now (Actual Amount)	Preferred Amount (Now)
53. Telephone?	# of contacts per week: _____	# of contacts per week: _____	# of contacts per week: _____
54. EMAIL?	# of contacts per week: _____	# of contacts per week: _____	# of contacts per week: _____
55. Written Correspondence (to include facsimiles but not email)?	# of contacts per week: _____	# of contacts per week: _____	# of contacts per week: _____
56. Face-to-Face?	# of contacts per week: _____	# of contacts per week: _____	# of contacts per week: _____
57. Are you currently keeping in any type of contact with your previous supervisor (please circle a response)		O Yes O No O No Desire for Contact	

We would like to ask you some questions relating to how you CURRENTLY feel about your Previous Supervisor. For each statement, please fill in the circle for the number that indicates the extent to which you agree with each statement. Use the scale below for your responses.

For the purposes of this survey please consider your **CURRENT RELATIONSHIP** with your

Previous Supervisor.

① Not at All	② To a Slight Extent	③ To Some Extent	④ To a Large Extent	⑤ To a Very Large Extent	⊗ NA

In your CURRENT RELATIONSHIP with your Previous Supervisor, To what extent does your Previous Supervisor…

	①	②	③	④	⑤	⊗
58. Encourage you to try new ways of behaving on the job?	①	②	③	④	⑤	⊗
59. Discuss your questions or concerns regarding feelings of competence, commitment to advancement, relationships with peers and supervisors or work/family conflicts?	①	②	③	④	⑤	⊗
60. Serve as a role model?	①	②	③	④	⑤	⊗
61. Demonstrate good listening skills in your conversations?	①	②	③	④	⑤	⊗
62. Convey feelings of respect for you as an individual	①	②	③	④	⑤	⊗
63. Encourage you to talk openly about anxieties and fears that detract you from work?	①	②	③	④	⑤	⊗
64. Share personal experiences as an alternative perspective to your problem?	①	②	③	④	⑤	⊗
65. Display attitudes and values similar to your own?	①	②	③	④	⑤	⊗
66. Assign responsibilities to you that increase your contact with people who will judge your potential for future advancement?	①	②	③	④	⑤	⊗
67. Reduce unnecessary risks that could have threatened your opportunities for promotion?	①	②	③	④	⑤	⊗
68. Help you meet new colleagues?	①	②	③	④	⑤	⊗
69. Give you projects or tasks that prepare you for higher positions?	①	②	③	④	⑤	⊗
70. Help you finish projects or tasks to meet deadlines that otherwise would be difficult to complete?	①	②	③	④	⑤	⊗
71. Encourage you to prepare for advancement?	①	②	③	④	⑤	⊗
72. Give you projects that present opportunities to learn new skills?	①	②	③	④	⑤	⊗
73. Give projects that increase your contact with higher-level manager?	①	②	③	④	⑤	⊗
74. Protect you from working with other managers or work units before you knew about their likes/dislikes, opinions on controversial topics, and the nature of the political environment?	①	②	③	④	⑤	⊗
75. Keep you informed about what is going on at the higher levels in the organization or how external conditions are influencing the organization?	①	②	③	④	⑤	⊗
76. Provide support and feedback regarding your performance as an officer?	①	②	③	④	⑤	⊗

①	②	③	④	⑤	⊗
Not at All	To a Slight Extent	To Some Extent	To a Large Extent	To a Very Large Extent	NA

	①	②	③	④⑤	⊗
77. Give you projects that increase written and personal contact with senior officers?	①	②	③	④⑤	⊗
78. Interact with you socially outside of work?	①	②	③	④ ⑤	⊗

Air Force Instruction 36-3401, Air Force Mentoring, establishes mentoring as the fundamental responsibility of all Air Force supervisors in order to pass on the principles, traditions, and values of our profession. A mentor is generally defined as an individual with advance experience and knowledge who is dedicated to the career development of his or her protégé. A protégé is a junior person who the mentor takes an interest in.

①	②	③	④	⑤	⊗
Not at All	To a Slight Extent	To Some Extent	To a Large Extent	To a Very Large Extent	NA

Based on the definition of mentor and protégé, please consider the following question.

	①	②	③	④	⑤	⊗
79. Prior to your last PCS, to what extent did you consider your last supervisor your mentor	①	②	③	④	⑤	⊗
80. To what extent do you still consider your last supervisor your mentor	①	②	③	④	⑤	⊗
81. To what extent do you plan on maintaining communications with your last supervisor?	①	②	③	④	⑤	⊗
82. How successful have you been at maintaining contact with your last supervisor?	①	②	③	④	⑤	⊗

83. Approximately how long have you considered your last supervisor your mentor? Years_____ Months_____

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Reassurance of Anonymity

ALL ANSWERS ARE ANONYMOUS. No one other than the research team will see your completed questionnaire. Findings will be reported at the group level only. We asked for some demographic information in order to interpret results more accurately. Reports summarizing trends in large groups may be published.

Questions/Concerns

If you have any questions or concerns please feel free to contact the research team members listed on the front page of the questionnaire. We appreciate your participation and would be happy to address any questions you may have regarding the questionnaire or our research in general.

Feedback

If you are interested in getting feedback on our research results, please provide us with the following personal information so we can reach you at a later date:

Name: _____

Address: _____

           _____

Phone: _____

Appendix B
Tables B1 and B2

Table B1

Sample 1 and Sample 2 Demographics

Factor	Entire 06 Sample (*N* = 229)	Entire 05 Sample (*N* = 54)
Age	*M* = 29, *SD* = 5.01, (*n* = 228)	*M* = 31, *SD* = 4.48, (*n* = 54)
Sex		
Male	86.5% (*n* = 198)	85.2% (*n* = 46)
Female	13.5% (*n* = 31)	14.8% (*n* = 8)
Race		
White	86% (*n* = 198)	81.5% (*n* = 44)
Black	1.8% (*n* = 4)	3.7% (*n* = 2)
Hispanic	3.5% (*n* = 8)	1.9% (*n* = 1)
Asian	6.1% (*n* = 14)	7.4% (*n* = 4)
Other	1.8% (*n* = 4)	3.7% (*n* = 2)
Marital Status		
Married	69% (*n* = 158)	77.8% (*n* = 42)
Divorced	2.2% (*n* = 5)	7.4% (*n* = 4)
Single	28.8% (*n* = 66)	14.8% (*n* = 8)
Highest Academic Degree		
Bachelor's	88.6% (*n* = 203)	83.3% (*n* = 45)
Graduate	11.4% (*n* = 26)	16.7% (*n* = 9)
Rank		
FGO	4% (*n* = 9)	14.8% (*n* = 8)
CGO	26.8% (*n* = 60)	44.4% (*n* = 24)
Enlisted	25.3% (*n* = 58)	13% (*n* = 7)
Geographic Separation		
Separated	82.1% (*n* = 183)	92.6% (*n* = 50)
Not separated	17.9% (*n* = 40)	7.4% (*n* = 4)
Consider Mentor		
Yes	62.5% (*n* = 115)	62% (*n* = 31)
No	37.5% (*n* = 69)	38% (*n* = 19)
Current E-mail Freq.	*M* = 0.36, *SD* = 1.21, (*n* = 145)	*M* = 0.90, *SD* = 2.00, (*n* = 46)
Current Telephone Freq.	*M* = .16, *SD* = 0.53, (*n* = 144)	*M* = 0.16, *SD* = 0.42, (*n* = 47)
Current Written Freq.	*M* = 0.002, *SD* = 0.02, (*n* = 145)	*M* = 0.01, *SD* = 0.04, (*n* = 47)
Current Face Freq	*M* = 0.23, *SD* = 1.02, (*n* = 146)	*M* = 0.32, *SD* = 0.88, (*n* = 48)
Duration of Formal Mentoring	*M* = 16.99, *SD* = 10.38, (*n* = 223)	*M* = 18.6, *SD* = 10.68, (*n* = 53)

Table B2

Combined Sample Demographics

Factor	Sample of Interest ($N = 100$)
Age	$M = 30.34,$ $SD = 4.65, (n = 100)$
Sex	
Male	84% ($n = 84$)
Female	16% ($n = 16$)
Race	
White	82% ($n = 82$)
Black	4% ($n = 4$)
Hispanic	4% ($n = 4$)
Asian	7% ($n = 7$)
Other	3% ($n = 3$)
Marital Status	
Married	77% ($n = 77$)
Divorced	6% ($n = 6$)
Single	17% ($n = 17$)
Highest Academic Degree	
Bachelor's	85% ($n = 85$)
Graduate	15% ($n = 15$)
Rank	
FGO	11% ($n = 11$)
CGO	42% ($n = 42$)
Enlisted	16% ($n = 16$)
Geographic Separation	
Separated	100% ($n = 100$)
Not separated	0% ($n = 0$)
Consider Mentor	
Yes	66.5% ($n = 60$)
No	33.5% ($n = 33$)
Current E-mail Freq.	$M = 0.59,$ $SD = 1.6, (n = 78)$
Current Telephone Freq.	$M = 0.11,$ $SD = 0.33, (n = 80)$
Current Written Freq.	$M = 0.004,$ $SD = 0.03, (n = 81)$
Current Face Freq	$M = 0.24,$ $SD = 1.00, (n = 81)$
Duration of Formal Mentoring	$M = 18.19$ $SD = 10.07, (n = 99)$
Duration of Separation	$M = 6.61$ $SD = 6.89, (n = 98)$

Appendix C
Tables C1 through C7

Table C1

Means, Standard Deviations, and Correlations Between Dependent and Independent Variable

	Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
1	Formal Mentoring Effectiveness	3.13	0.82	1.00									
2	Informal Mentoring Effectiveness	2.06	1.14	.34**	1.00								
3	Delta Mentoring Effectiveness	-1.11	1.16	-.38**	.74**	1.00							
4	Current Mentoring Status	2.52	1.41	.64**	.39**	-.08	1.00						
5	Current Telephone Freq	0.11	0.33	.20	-.06	-.18	.13	1.00					
6	Current E-mail Freq	0.39	1.00	.14	.13	.04	.14	.40**	1.00				
7	Current Written Correspondence Freq	0.004	0.03	.15	.05	-.05	.12	-.04	.29*	1.00			
8	Current Face-to-Face Freq	0.12	0.39	-.19	.02	.16	-.16	.15	.61**	.26*	1.00		
9	Duration of Separation	6.61	6.89	.13	-.09	-.19	-.15	.15	.16	.08	.24*	1.00	
10	Duration of Formal Mentoring	18.19	10.07	.27**	.08	-.10	.27**	.15	-.05	-.07	-.03	.02	1.00

n = 100
p < .05
**p < .01
Two-tailed test

Table C2

Hypothesis 1
Independent t-test for Formal Mentoring

Formal Mentoring Duration	*n*	*M*	*SD*	*p*
Longer Duration (≥ 12 months)	80	3.28	0.74	.00
Shorter Duration (< 12 months)	19	2.57	0.84	

Two-tailed test

Table C3

Hypothesis 2
Independent t-test for Informal Mentoring

Duration Length	*n*	*M*	*SD*	*p*
Longer Duration ($\geq$ 1 years)	26	2.03	0.95	.15
Shorter Duration (< 1 year)	33	2.47	1.31	

Two-tailed test

Table C4

Hypothesis 3
Regression Analysis for Predicting Current Informal Mentoring Status ($N = 87$)

Variable	*B*	*SE B*	β
[a]Delta Mentoring Effectiveness	-0.09	0.13	-.08
R^2	.006		
F	.48		

[a]Delta Mentoring Effectiveness = ME LAPS – ME CAPS

p < .05 (two-tailed test)

B = Unstandardized

β = Standardized

Table C5

Hypothesis 4a
Regression Analysis for E-mail Moderator Determination ($N = 48$)

Variables	*B*	*SE B*	β	Collinearity Statistics Tolerance	VIF
Duration of Separation	-0.03	0.03	-.17	.72	1.40
Current E-mail Frequency	0.29	0.48	.47	.04	26.59
Cross Product	-0.02	0.04	-.30	.04	25.52
R^2	.04				
F	.61				

Cross Product = Duration of Separation x Current E-mail Frequency

p < .05 (two-tailed test)

B = Unstandardized

β = Standardized

Table C6

Hypothesis 4b

Regression Analysis for Telephone Moderator Determination ($N = 48$)

Variables	*B*	*SE B*	β	Collinearity Statistics Tolerance	VIF
Duration of Separation	-0.01	0.02	-.09	.96	1.04
Current Telephone Frequency	-0.07	1.09	-.03	.17	6.07
Cross Product	-0.02	0.08	-.07	.17	5.97
R^2	.02				
F	.26				

Cross Product = Duration of Separation x Current Telephone Frequency

*p < .05 (two-tailed test)

B = Unstandardized

β = Standardized

Table C7

Hypothesis 4d
Regression Analysis for Face-to-Face Moderator Determination ($N = 48$)

				Collinearity Statistics	
Variables	*B*	*SE B*	β	Tolerance	VIF
Duration of Separation	-0.07	0.40	-.45	.003	299.40
Current Face-to-Face Frequency	-3.85	20.55	-.67	.002	575.97
Cross Product	0.36	1.64	.88	.001	715.88
R^2	.02				
F	.37				

Cross Product = Duration of Separation x Current Face-to-Face Frequency

p < .05 (two-tailed test)

B = Unstandardized

β = Standardized

Appendix D:

Human Subject Research Review Forms

DEPARTMENT OF THE AIR FORCE
AIR FORCE RESEARCH LABORATORY (AFMC)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

24 August 2004

MEMORANDUM FOR AFIT/ENV
ATTN: Chen Y. Su

FROM: AFRL/HEH

SUBJECT: Approval for the Use of Volunteers in Demonstrations

1. Human experimentation as described in Protocol 04-54-E, "Perceived Mentoring Effectiveness Survey", may begin.

2. In accordance with AFI 40-402, this protocol was reviewed and approved by the Wright Site Institutional Review Board (WSIRB) on 19 August 2004, the AFRL Chief of Aerospace Medicine on 20 August 2004.

3. Please notify the undersigned of any changes in procedures prior to their implementation. A judgment will be made at that time whether or not a complete WSIRB review is necessary.

Signed 24 August 2004
HELEN JENNINGS
Human Use Administrator

10 Aug 04

MEMORANDUM FOR AFIT/ENV
                                AFIT/ENR
                                AFRL/HEH
                                IN TURN

FROM: AFIT/ENV/GEM

SUBJECT: Request for Exemption from Human Experimentation Requirements (AFI 40-402): Thesis Research, AFIT/ENV/GEM, Perceived Mentoring Effectiveness Survey.

1. Request exemption from Human Experimentation Requirements of AFI 40-402 for the proposed Perceived Mentoring Effectiveness Survey to be conducted in conjunction with thesis research at the Air Force Institute of Technology.   Purpose of this study is to conduct research on the relationship between communication media and perceived mentoring effectiveness when the mentors and protégés are geographically separated. The results of this study will provide Air Force members a better understanding of how mentoring relationships are redefined when mentors and protégés are separated due to geographic separation.

2. This request is based on the Code of Federal Regulations, title 32, part 219, section 101, paragraph (b) (2); Research activities that involve human subjects will be exempt when the research involves the use of survey procedures provided (i) information obtained cannot be directly or through identifiers linked to the subjects, and (ii) disclosure of subjects' responses does not place the subjects at risk of criminal or civil liability, financial strain, employability or reputation ruin. Methodology used to collect information for mentoring research is based on survey procedures. The following information is provided to show cause for such an exemption:

   2.1. Equipment and facilities: No special equipment or facilities will be used.

   2.2. Subjects: Subjects will be Air Force AFIT graduate students from both the inbound class (expected graduation date 06) and the current class (expected graduation date 05).

   2.3. Timeframe: Data will be collected from the inbound AFIT class in Aug/Sep 2004. Data collected from the current AFIT class will be in Sep/Oct 2004.

2.4. Description of the survey: Data will be collected using a 83-item survey.
Survey questions consist of demographics, mentoring effective measurements,
and time duration items. Surveys will be distributed during the last 20 minutes of
a colloquium (current class) or orientation briefing (new class) to ensure
respondents have the opportunity to choose to not participate. Respondents are
asked to provide mother's maiden name to facilitate matching of surveys in the
event future research is conducted beyond the scope of this project.

2.5. Data collected: No identifying information is obtained through the survey.

2.6. Informed consent: Survey participation is strictly voluntary. No adverse
action is taken against those who choose not to participate. Subjects will be made
aware of the nature and purpose of the research, sponsors of the research, and
disposition of the survey results. A copy of the Privacy Act Statement of 1974
will be presented for their review.

2.7. Risks to Subjects: Individual responses of the subjects will not be disclosed.
This eliminates any risks to the subjects as noted in paragraph 2. There are no
anticipated medical risks associated with this study.

3. If you have any questions about this request, please contact Capt. Chen-Yen Su -
Phone (937) 427-1410; E-mail – chen.su@afit.edu or Major Sharon G. Heilmann who
will serve as the Faculty Advisor (primary investigator) – Phone 255-3636, ext. 4553; E-
mail – Sharon.heilmann@afit.edu.

CHEN Y. SU, Capt, USAF
Graduate Student, AFIT/ENV/GEM

SHARON G. HEILMANN, Maj, USAF
Assistant Professor of Management
Faculty Advisor, AFIT/ENV/GEM

Attachment:
Perceived Mentoring Effectiveness Survey

Vita

Captain Chen Yen Su graduated from Lely High School in Naples, Florida. He entered undergraduate studies at the United States Air Force Academy, Colorado, where he graduated with a Bachelor of Science degree in Civil Engineering in May 1997. On the same day he graduated from the Academy, he earned his commission as a 2nd Lieutenant in the United States Air Force.

His first assignment was at Columbus AFB as an Environmental Engineer in August 1997. In Aug 2000, he was assigned to the 21st Civil Engineering Squadron, Peterson AFB Colorado. While stationed at Peterson he served as a Readiness Flight Commander and then as a Deputy Design Chief. In September 2001, he deployed overseas to spend three months at Prince Sultan Air Base, Saudi Arabia, as the 365th Pavement Engineer. Also during his time at Peterson AFB, he started taking night classes and eventually earned a Master of Business Administration from Webster University in May 2003. In August 2003, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology. Upon graduation, he will be assigned to the Ramstein AB, Germany, as the AFCEE Liaison.

1. REPORT DATE *(DD-MM-YYYY)* 21-03-2005	2. REPORT TYPE **Master's Thesis**		3. DATES COVERED *(From – To)* Aug 2003 – Mar 2005		

4. TITLE AND SUBTITLE An Examination of the Effects of Communication Media on Geographically Separated Mentors and Protégés: Does Distance Matter?	5a. CONTRACT NUMBER
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S) Chen Yen Su, Captain, USAF	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAMES(S) AND ADDRESS(S) Air Force Institute of Technology Graduate School of Engineering and Management (AFIT/ENV) 2950 Hobson Way WPAFB OH 45433-7765	8. PERFORMING ORGANIZATION REPORT NUMBER AFIT/GEM/ENV/05M-11
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.

13. SUPPLEMENTARY NOTES

14. ABSTRACT

The purpose of this study was to explore and evaluate the extent to which a formal mentoring relationship could transition into an informal mentoring relationship after geographically separating a formal mentor-protégé dyad. This study also explored the moderating effects of individual communication media (i.e., e-mail, telephone, written correspondence, and face-to-face) on the relationship between duration of separation and perceived mentoring effectiveness. Data were collected from 283 military graduate students attending an 18-month graduate program.

The results of this research revealed protégé perceptions of mentoring effectiveness increased with the length of the relationship. Furthermore, this study found formal mentoring relationships were capable of transitioning into informal mentoring relationships.

15. SUBJECT TERMS
Mentoring, Air Force Personnel, Personnel Development

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON Sharon G. Heilmann, Major, USAF (ENV)
REPORT U	ABSTRACT U	c. THIS PAGE U	UU	94	19b. TELEPHONE NUMBER *(Include area code)* (937) 255-3636x4553; e-mail: Sharon.heilmann@afit.edu